# Pacific Seabird Group

# BULLETIN

Volume 10 Number 1 Summer 1983

SHOUT
SHARE
IT

PACIFIC SEABIRD GROUP
BULLETIN

Volume 10 | Summer 1983 | Number 1

The Chairman's Page . . . . . 3

Pacific Seabird Group News . . . . . 4

Regional Reports. . . . . 5

Alaska . . . . . 5

British Columbia . . . . . 8

Washington . . . . . 9

Oregon . . . . . 10

Northern California. . . . . 11

Southern California. . . . . 12

Mexico . . . . . 14

Hawaii. . . . . 15

Eastern Canada . . . . . 19

Letters to the Editor . . . . . 20

Conservation Committee. . . . . 21

Scientific Translations Committee. . . . . 22

Washington State Marine Sanctuaries Program . . . . . 23

International Threats to Seabirds . . . . . 24

Oil vs. Seals . . . . . 24

Reproductive Failure of Marine Birds on Christmas Island, Fall 1982. . . . . 25

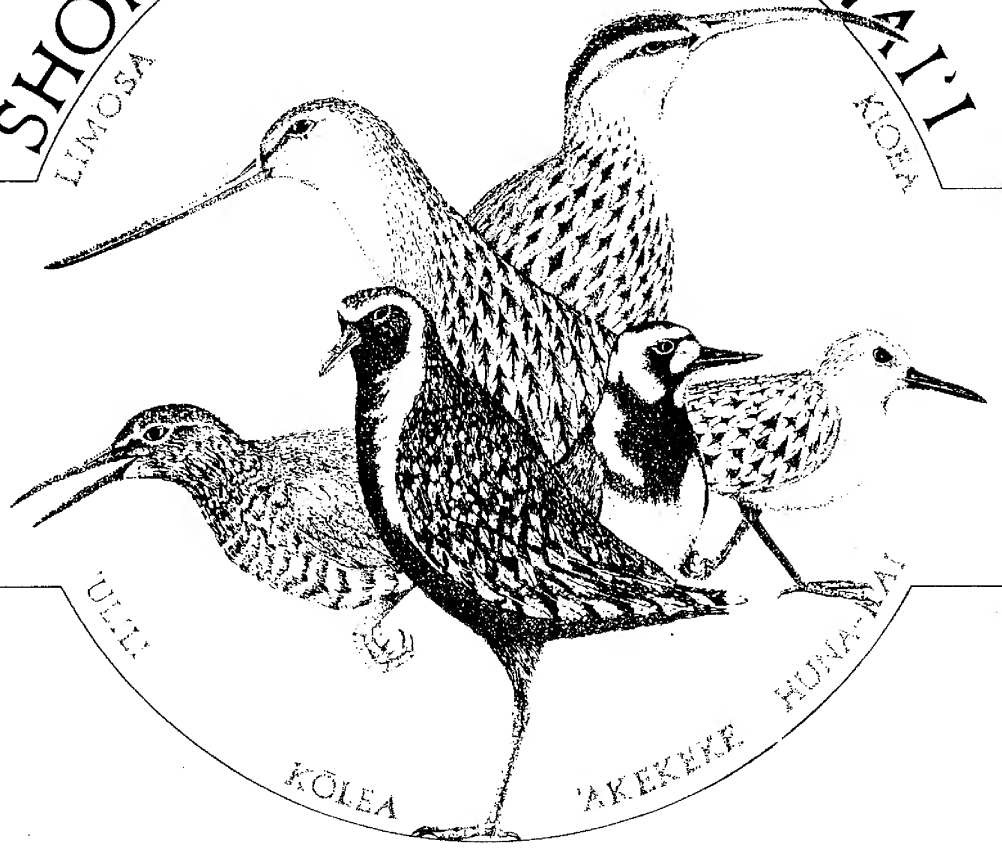
Book Reviews . . . . . 28

New Publications. . . . . 29

Bulletin Board. . . . . 30

New Members . . . . . 32

# SHOREBIRDS OF HAWAI'I




RAUZON '83

## THE CHAIRMAN'S PAGE

This is the second Bulletin that utilizes the new IBM Composer format. This handsome new style vastly improves the appearance of our Bulletin. Congratulations to Editor Joe Strauch for a job well done.

Several PSG members have been active during the past few months. Dick Mewaldt arranged for our Tenth meeting to be at Asilomar 5-8 January 1984. Our hosts will be San Jose State University, Point Reyes Bird Observatory, and San Francisco Bay Bird Observatory. Chairperson-elect Judith Hand has organized the program, which will include a history of our first decade by Michael Scott (our first Chairman) and a photo contest. Details concerning registration and the call for papers have been mailed to each member. If you have been overlooked, please contact Dr. L. Richard Mewaldt, Avian Biology Laboratory, San Jose State University, San Jose, CA 95192, (408) 277-2355.

Kees Vermeer has appointed the members of his new Conservation Committee and has announced a tentative agenda. George Hunt has begun work on the new Seabird-Fisheries Committee. We look forward to reports concerning these activities at our next Executive Council meeting and in future Bulletins.

We have received word from Warren King that PSG has been elected unanimously to constituent organizational membership in the U.S. Section of ICBP. Among the 20 member societies are the American Ornithologists' Union, National Audubon Society, National Wildlife Federation, Smithsonian Institution, and World Wildlife Fund. We are in excellent company. I have appointed Ron Naveen, a former NOAA attorney, and William Drury, College of the Atlantic, to be PSG delegates to the ICBP. The ICBP was founded in 1922 and is one of the oldest extant conservation organizations.

Ralph Schreiber, editor of the Tropical Seabird Symposium, expects to send the manuscripts to the printer in June. The volume should be available to members and others in Fall 1983.

I have asked Judith Hand to investigate the costs that would be entailed in incorporating PSG. There are many sound reasons to incorporate, including making solicitations for a PSG endowment fund easier. I view this move as simply one more step in the maturation of PSG into an effective, permanent organization.

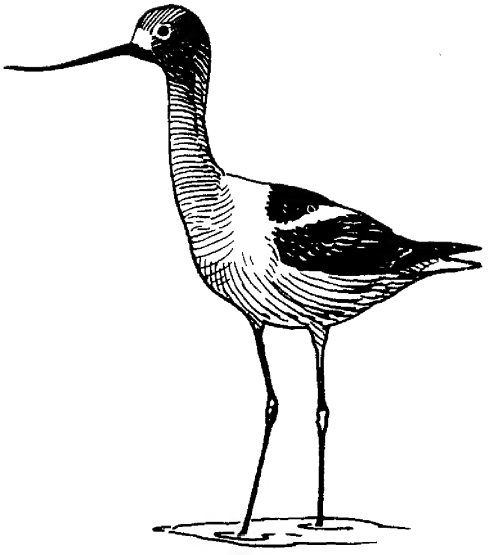
Several conservation issues have recently occupied my time. Thanks to input from several regional representatives and members, I am sending formal comments to NOAA concerning their new list of proposed marine sanctuary sites. One serious omission is the lack of nominations from Alaska. In addition, the U.S. Fish and Wildlife Service plans to allow oil companies to build large runways on St. Matthew Island to aid in the exploration and exploitation of the Navarin Basin. St. Matthew Island is the only large uninhabited island in the Bering Sea. It is both a national wildlife refuge and a wilderness area. Individually and collectively, we must scrutinize this development carefully to ensure that the interests of marine birds are protected. I have already written to the Director of FWS indicating our concerns on this issue.

Each member will receive a ballot this summer concerning possible name changes and reorganization of PSG. Included will be a "voter's guide" to explain the pros and cons of each proposal. Joe Strauch and his committee worked hard to consider the various proposals. The Executive Council will consider amending our bylaws based on the results of this election.

My personal view is that we would make a grave mistake by changing our name. We have worked a decade gaining recognition for PSG. Our roots have been and always will be in the Pacific Ocean. Other ornithological and scientific societies have retained their names after outgrowing their original purpose. For example, the British Ornithologists' Union today has about half of its members outside the U.K. Let's discuss any needs for organizational changes within the context of remaining PSG.

This is a serious matter for PSG; I hope we have a large vote.

Craig S. Harrison



## PACIFIC SEABIRD GROUP NEWS

*Tenth Annual Meeting*

The tenth annual meeting of the Pacific Seabird Group will be held 5-8 January 1984 at the Asilomar, Pacific Grove, California. The announcement, call for papers, and registration form have been mailed and should have been received by all members. Anyone not yet receiving these items or otherwise in need of copies should write to Dr. L. Richard Mewaldt, 4150 Golf Drive, San Jose, CA 95127.

*New Membership Directory*

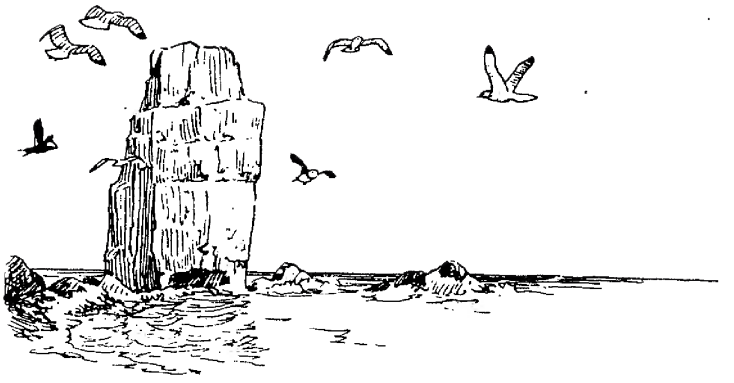
Work on a new membership directory will begin soon. If any corrections are needed in your current listing or if you plan to change your address soon, please notify the Treasurer, Doug Siegel-Causey, at once. Please note that we also list telephone numbers but do not have them for many members.

*Finn Salomonsen, 1909-1983*

Word has been received of the death of Dr. Finn Salomonsen on 27 April 1983. Dr. Salomonsen died as he was preparing for his 24th expedition to Greenland to work on seabird colonies.

*Acknowledgments*

The Editor thanks Betsy Strauch for her help in all stages of the production of the Bulletin; Esther Goodyear for her meticulous setting of the Bulletin with her IBM Composer; and Harry Ohlendorf, Mark Rauzon, Art Sowls, M. Stewart, Paula Walkup, and Duff Wehle for their artwork, which has adorned recent issues of the Bulletin.



Bob Hines

## REGIONAL REPORTS

### ALASKA, TONY DeGANGE

*Pelagic Studies*

Nancy Harrison and George Hunt (UC Irvine) are continuing their studies of seabird distribution in the Bering Sea. This summer their work will focus on the distribution of auklets and their prey around St. Lawrence Island. Doug Forsell (USFWS) and Bob Day (UA Fairbanks) are continuing studies of seabird distribution and abundance in the Aleutian Islands. This year the emphasis of their work will be on the age and sex composition of puffins south of Agattu and Attu Islands. This work will tie in with the studies of Tony DeGange (USFWS), Linda Jones, Larry Tsunoda, and others (NMFS) on the mortality of seabirds in the Japanese high seas salmon fishery. This season DeGange, Tsunoda, and 10 others will distribute themselves among the four Japanese salmon fleets and continue the collection of data on seabird and Dall's porpoise mortality in that fishery. Terry Wahl will study seabird distribution and abundance in the Gulf of Alaska aboard the Japanese R/V *Oshoro Maru.*

*Coastal and Estuarine Studies*

Jim King, Bruce Conant, and John Trapp (USFWS) continued their winter surveys of marine birds in Frederick Sound in Southeast Alaska. Results of this study which compare simultaneous surveys of marine birds from small planes and boats will be available next year following the third year of study. Dennis Zwiefelhoffer and others of the Kodiak Island NWR continue their fourth year of surveys of wintering marine birds in the coastal waters of Kodiak Island. David Irons (USFWS) is beginning a study of the seasonal distribution of marine birds in various marine habitats in Prince William Sound. Pat Hegland and others (USFWS) are completing their second and final year of surveys of migrant and summer bird populations on the Stikine River in Southeast Alaska.

*Colony Studies*

George Divoky (College of the Atlantic) continues his long-term study of color-marked Black Guillemots at Cooper Island in the Beaufort Sea. Divoky with the support of the North Slope Borough and Steve Johnson (LGL) with the support of SOHIO are attempting to increase the population of nesting eiders on barrier islands in the Beaufort Sea by constructing protected nest sites from plywood. Dave Roseneau and Alan Springer (LGL) and Ed Murphy (UA Fairbanks) are continuing their monitoring of murre and kittiwake populations at Bluff Island and at Cape Thompson. They will again be examining the relationships among sea temperature, food availability, and seabird production. Art Sowls, David Irons, and others (USFWS) will again spend the summer at St. Matthew Island. The emphasis this season will be on refining population estimates of auklets, kittiwakes, and murres; establishing long-term population monitoring plots; and studying the increasing population of walruses that haul out there. Dave Roseneau (LGL) will also briefly return to St. Matthew Island to continue his work on long-term population changes of seabirds. Margaret Petersen (USFWS) and Steve Thompson (UC Davis) continue their studies of Emperor Geese at Kokechik Bay on the Yukon Delta.

Biological work in the Aleutian Islands is emphasizing removal of Arctic foxes from islands and transplanting of Aleutian Canada Geese. Removal of Arctic foxes, although done primarily to benefit Aleutian Canada Geese, could be of great benefit to seabirds. John Martin, Fred Zeillemaker, and Van Kleet (Alaska Maritime NWR) will examine Arctic fox populations on Kiska and assess procedures for their removal from that island. Ed Bailey and Fred Deines (Alaska Maritime NWR) are removing foxes from Amukta Island. They will also census seabird populations on nearby Chagulak Island. In a pilot study, Ed Bailey will introduce male red foxes onto Adugak Island for biological control of Arctic foxes. In theory, the red foxes will outcompete the smaller Arctic foxes for resources and later when the red foxes naturally die out, the island will become fox free. Scott Hatch (USFWS) continues his long-standing study of Northern Fulmars. This season Hatch will assess the feasibility of using electrophoresis of muscle proteins to separate geographic subpopulations of seabirds. Art Sowls and Doug Forsell (USFWS) are collecting seabirds at St. Matthew Island and in the Aleutians to assess heavy metal and organochlorine residues in seabirds. Fred Zeillemaker and Fred Deines (Alaska Maritime NWR) and Michael Amaral and Dan Benfield (USFWS) are transplanting Aleutian Canada Geese from Buldir Island to Agattu Island.

Elsewhere in Alaska, Tom Early, Ed Bailey, and Fred Deines (Alaska Maritime NWR) will census seabirds and Arctic foxes in the Sanak Reef and Pavlof Islands along the Alaska Peninsula. Lynne Krasnow (USFWS) is continuing her studies of the feeding habits and productivity of seabirds in Chiniak Bay, Kodiak Island. Dee Boersma and Emily Davies (UW Seattle) begin the eighth season of seabird studies in the Barren Islands. Their work will continue to focus on mate and burrow fidelity and productivity of Fork-tailed Storm-Petrels and the use of petrel regurgitations in assessing hydrocarbon levels in the oceans. Pat Gould and David Nysewander (USFWS) will monitor populations and productivity of murres and kittiwakes on Middleton Island. Nysewander will also reexamine inland populations of Herring Gulls, Herring Gull X Glaucous-winged Gull hybrids, and Double-crested Cormorants at Lake Louise, Skilak Lake, and the Susitna River Delta. In Southeast Alaska, Paul Arneson, Sue Quinlan, Bud Lehnhausen, and Jeff Hughes (ADF&G) are initiating a study of Marbled Murrelets at Kelp Bay, Baranof Island. Their work will explore the relationships between nesting Marbled Murrelets and old-growth forests using radio tracking.

*Conservation News*

Seabird enthusiasts and conservationists in Alaska are concerned about several land trades or

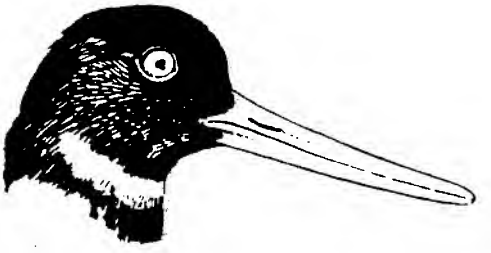
selections that may put several important seabird colonies or lands adjacent to these colonies in private ownership. These lands are Middleton Island in the Gulf of Alaska, St. Matthew Island in the Bering Sea, and Cooper Island in the Beaufort Sea.

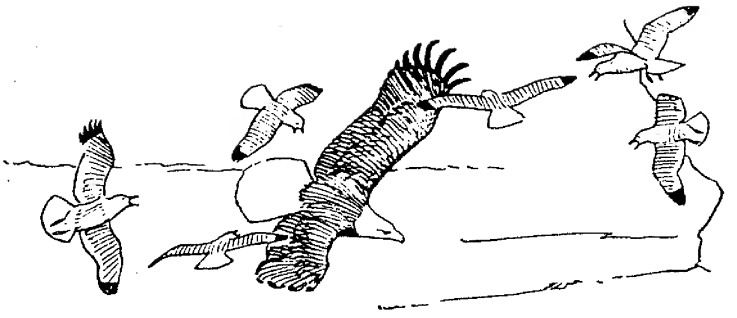
During the summer Middleton Island is the breeding site of 150,000 Black-legged Kittiwakes, 6,000 murres, and 2,600 Pelagic Cormorants. It is one of the largest kittiwake colonies in the world. Middleton Island was included in the Alaska Maritime National Wildlife Refuge but has been selected by Chugach Natives Incorporated (CNI) to fill deficiencies in their land selections made prior to passage of the Alaska National Interest Land Conservation Act. The U.S. Fish and Wildlife Service has requested and will receive protective easements around the colonies. CNI's plans for Middleton Island are unavailable at this time.

The U.S. Fish and Wildlife Service and the Department of Interior are currently negotiating with two Alaskan Native corporations, principally Cook Inlet Region Incorporated (CIRI), concerning lands on St. Matthew Island, a national wildlife refuge since early in this century. As it stands now, Interior will trade about 4,100 acres on St. Matthew Island for several inholdings within existing refuge boundaries on the Kenai Peninsula and Nunivak Island and a nondevelopment easement on lands near Kokechik Bay, a rich goose production area on the Yukon Delta. The proposed trade was prompted by the Atlantic Richfield Oil Company, which hopes to lease the land on St. Matthew from CIRI and build a facility to aid in the exploration and development of oil fields in the Navarin Basin. The trade would not place any seabird cliffs directly into private ownership, but the proximity of thousands of cliff- and talus-nesting seabirds to the proposed development, which includes two airstrips capable of handling C-130 cargo planes, is cause for concern. In addition, the new activity may drive away walruses which haul out on a beach near the proposed construction site. One can also imagine what C-130's and heavy equipment could do to the wilderness qualities of this already officially designated wilderness island. The traded land would revert back to federal ownership when it was no longer needed by industry.

Cooper Island, including its subsurface rights; a parcel of land near Teshekpuk Lake, a prime goose molting area; and several other sites on the North Slope are being considered by the Department of Interior for trade to the Arctic Slope Regional Corporation for inholdings within the Gates of the Arctic National Park. Populations of seabirds on Cooper Island are the largest in the Alaska Beaufort Sea. The island is of great scientific importance because of George Divoky's long-term study of Black Guillemots and Arctic Terns that nest there. The Black Guillemot colony on Cooper Island may be the largest of its kind in Alaska. Until now, government agencies have done a good job of protecting barrier islands in the Beaufort Sea. Maybe times are changing.

At this writing, of the three possible changes in land status, that on Middleton Island looks the most likely. The protective easements which the Fish and Wildlife Service will obtain may be enough to protect the colonies there, but this will depend on development plans for the island. Future negotiations on the other trades will be viewed with great interest. On a positive note, the Fish and Wildlife Service is in the process of buying the magnificent seabird cliffs on the Pribilof Islands to give them full protection and is planning to buy or trade for several colony sites in the eastern Aleutian Islands that are currently in private hands.





## BRITISH COLUMBIA, KEES VERMEER

*Current Research*

The following seabird projects are planned in British Columbia for 1983:

1. R. Wayne Campbell and Bristol Foster. Habitat manipulation of Double-crested and Pelagic Cormorants on the Chain Islands.

2. Glen Chilton. Diurnal roosting and foraging of gulls in Barkley Sound.

3. Keith A. Hobson. Importance of diurnal roosting sites to foraging of Pelagic Cormorants in Barkley Sound.

4. Gary Kaiser and Kees Vermeer. Population study of Rhinoceros Auklets on Lucy Island, 1983-1985.

5. Kees Vermeer, Gary Kaiser, Moira Lemon, and Mike Rodway. Survey of nesting seabirds of the Queen Charlotte Islands 1983-1985.

6. Kees Vermeer and Moira Lemon. Nesting biology of Fork-tailed and Leach's Storm-Petrels on Hippa Island, Queen Charlotte Islands.

7. Gary Kaiser and R. W. Campbell. Report on population trends of surface nesting seabirds of southern British Columbia will be finished late 1983.

*Item of Interest*

An Atlas of British Columbia seabirds is now available free of charge. Persons interested in obtaining a copy should contact Kees Vermeer, Canadian Wildlife Service, P. O. Box 6000, Sydney, BC V8L 4B2, Canada.

WASHINGTON, P. DEE BOERSMA

*Battelle Laboratories*

R. Fitzner has been looking at chemical contaminants of seabirds.

*The Evergreen State College*

Steve Herman continues to study shorebirds at Grays Harbor. The media have taken an interest in his efforts to save habitat of particular importance to migrating shorebirds.

*Seattle Aquarium*

G. Ballew is attempting to breed auklets and murres.

*University of Washington*

1. Institute for Environmental Studies

   P. D. Boersma will begin a study of the Magellanic Penguin at Punta Tombo, Argentina. The storm-petrel research on Tatoosh Island, Washington, continues.

2. Wildlife Science Group

   E. Holberg is studying zoogeography and ecological relationship of parasites in alcids and 15 species of antarctic seabirds.

   Ted Simons has finished his thesis on the Dark-Rumped Petrel. The thesis will be available through the Western Region of the National Park Service as a technical report. Ted plans to continue working for a few weeks each year in Hawaii on the Dark-Rumped Petrel.

3. Zoology

   A. Harper and M. Hutchins will be working on sibling aggression in Brown Boobies on Isla Isabel in Mexico.

   W. Reid is working on reproductive investment patterns and survival in Gulls. He is also looking at the food habits of Rhinoceros Auklets on Protection Island.

*Walla Walla College*

J. Galusha, C. J. Amlaner, Jr., and N. Bell are studying sleep behavior, recognition of young by parents, territorial behavior, feeding behavior, and foraging behavior of gulls on Protection Island.

*U. S. Fish and Wildlife Service*

U. Wilson is continuing his research on the behavioral natural history of the Rhinoceros Auklet. He plans to study nest site tenacity and is continuing to place nesting boxes on Protection Island. He is also studying the distribution and abundance of seabirds along the outer coast.

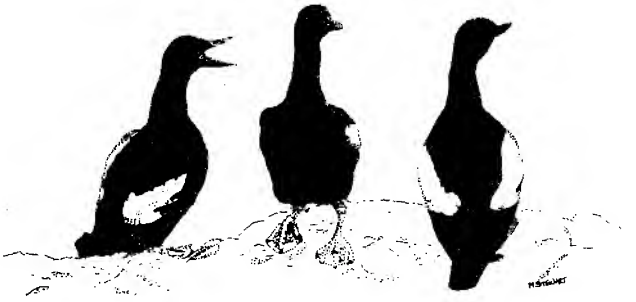
*Independent Researchers*

T. Wahl and S. Speich are finishing the atlas of *Seabird Colonies of Washington State*. The research is sponsored by the Fish and Wildlife Service.

T. Wahl is continuing his surveys of the distribution of seabirds at sea.

D. Ainley and T. Wahl are undertaking a study to relate seabird distribution in the subarctic Pacific to oceanography.

T. Wahl, S. Speich, G. Eddy, and S. Thompson will be surveying the seabird colonies in the San Juan Islands in June 1983.



## OREGON, DANIEL H. VAROUJEAN

*U.S. Fish and Wildlife Service*

The Office of Biological Services, Portland, has contracted Robert L. Pitman, Michael R. Graybill, and myself to compile a catalog of Oregon seabird colonies. We will incorporate colony field data collected in 1979 and historical information, gathered in large part by R. L. Pitman over the last two years, into the seabird colony catalog system for Washington, Oregon, and California. The catalog will be completed (and presumably available) before the end of the year.

Daniel L. Boone of Finley NWR has completed his dissertation research on the reproductive biology of the Tufted Puffin. He continues to monitor the breeding activities of puffins on Goat Island to assess the effects of the unseasonably warm sea-surface temperatures that occurred off Oregon this spring on puffin food availability, and hence puffin production.

*U.S. Minerals Management Service*

As part of the Seabird/Oil Toxicity Study being conducted for MMS by Nero and Associates, Inc. (Portland), Dick Grau, Program Manager, Michael Fry, and others (see *Northern California Report*) placed 250 nest boxes in the Leach's Storm-Petrel colony on Hunters Island in 1982. The boxes will be monitored through the 1983 breeding season to determine how many storm-petrels use the artificial nest sites.

*University of Oregon*

Daniel R. Matthews and I (Oregon Institute of Marine Biology) are continuing a study on the effects of Common Murre foraging on coho salmon smolts emanating from the Columbia River estuary. The study involves analyzing the stomach contents of birds collected off the Columbia River and censusing seabirds in this area. Daniel Matthews, a Master of Science candidate, is also comparing

the seasonal changes in diet of murres collected off Coos Bay. As part of her M.S. program, Holly Hansell has completed a study on the blood chemistry of Common Murres. She measured blood volume, $O_2$ carrying capacity of hemoglobin, and the buildup of lactate during prolonged dives.

Janet Hodder is continuing her Ph.D. dissertation project, a quantification of the dependence of waterfowl, primarily Brant, on eelgrass (*Zostera*) and green algae (*Ulva*) as forage. Her experimental design includes the use of exclusion cages placed in eelgrass and *Ulva* beds in Coos Bay. Preliminary results indicate that Brant appear to prefer feeding upon *Ulva*, when this alga and eelgrass are both available as forage. Initial attempts to cannon-net and place neck collars on Brant were unsuccessful this spring. A second attempt will be made next year.

Michael R. Graybill, vertebrate curator at the Oregon Institute of Marine Biology, and Janet Hodder are continuing to study the breeding biology of Pigeon Guillemots nesting among the timbers of piers at Coos Bay. They and biologists of the Oregon Dept. of Fish and Wildlife documented a guillemot die-off early in the 1983 breeding season which prompted an expansion of the guillemot survey to include colonies located north of Coos Bay.

Robert L. Pitman (Los Angeles County Museum) is continuing to gather data on Leach's Storm-Petrels nesting on Saddle Rock. The study, begun in 1979, includes the banding of adult birds and chicks, the collection and analysis of stomach contents regurgitated by birds removed from mist nets, and the documentation of breeding chronology and fledging success.

## NORTHERN CALIFORNIA, ROBERT BOEKELHEIDE

*Current Research*

Roy Lowe, Tom Harvey, and Paul Kelly (USFWS and Cal Fish and Game) are studying waterbird use of solar salt evaporation ponds in south San Francisco Bay and with Harry Ohlendorf (USFWS) are investigating heavy metal contamination in wintering Surf Scoters and scaup as part of a study of the food habits of wintering waterfowl in the bay. Roy, Tom, Harry, and members of the San Francisco Bay Bird Observatory (SFBBO) are investigating the effects of environmental contaminants on Black-crowned Night-Herons in San Francisco Bay.

Paul Jones of San Francisco State University and staff of SFBBO are continuing studies of California Gulls nesting at San Francisco Bay saltponds.

At Moss Landing Marine Lab., Jo Guerrero is beginning a study of the breeding biology of Pigeon Guillemots in Monterey Bay. Cheryl Bellrose (MLML and San Jose State University) is continuing studies of Western Gull breeding patterns at Elkhorn Slough.

Laura Collins, Stephen Bailey, and Leora Tierney (UC Berkeley) are entering their fourth year of monitoring and protective management of the Least Tern colony at Alameda Naval Air Station, where most northern California Least Terns breed.

Gary Page, Dave Shuford, and Emilie Strauss of Point Reyes Bird Observatory (PRBO) are investigating the relationship between California Gulls' breeding success at Mono Lake and the lake's fluctuating water levels. Joe Jehl (Hubbs Sea World) is also investigating California Gull and other waterbird use of the lake.

Gary Page, Frances Bidstrup, and about 100 volunteers continue studies of the breeding characteristics, dispersal, and winter distribution of Snowy Plovers throughout California.

Bob Boekelheide, Teya McElroy, Larry Spear, Jack Swenson, and David Ainley of PRBO continue studies of breeding species at the Farallon Islands, concentrating on the population biology of known individuals. In conjunction with Mike Fry, of UC Davis, PRBO is continuing to study the effects of petroleum ingestion on the breeding success and hormone cycling of Cassin's Auklet. The Davis group is undertaking a similar study of Wedged-tailed Shearwaters in Hawaii.

Virginia Norris (Sacramento State University) is initiating a study of the behavior of gulls at garbage dumps.

Dan Anderson (UC Davis) is investigating the effects of the 1983 El Niño on seabirds in the Gulf of California and characterizing their habitat use throughout the Gulf. Dan and Frank Gress (UCD) are continuing their long-term research of Brown Pelican breeding and feeding ecology at Anacapa Island.

*Conservation News*

Due to the large amount of rainfall and the huge snowpack during the last two winters, water levels of Mono Lake have risen two to four feet above levels in 1981. Some former California Gull breeding islands connected by land bridges to the surrounding shoreline within the past three years have become islands once again this year. It remains to be seen what effect the increased water levels will have for breeding and migrant birds and their prey species.

The California Gull population in south San Francisco Bay continues to increase, with about 400 pairs nesting this year in contrast to the 206 recorded last year. This is considerably less than the 1000 pairs erroneously reported in last year's regional report.

*News of the Ocean*

The most important event this year for California seabirds is the occurrence of El Niño-like conditions throughout the California Current System. Ocean sea surface temperatures at the Farallon Islands have been 2-4°C warmer than average throughout the spring, resulting from a dearth of northwesterly winds during the normal upwelling season and strong south winds associated with late winter and spring storm systems. Prey species ordinarily used in large numbers by Farallon seabirds, especially euphausiids and juvenile rockfish, have been notably absent from the birds' diets this year. Several seabird species, including Brandt's and Pelagic Cormorant, Common Murre, Cassin's Auklet, and Pigeon Guillemot, are either not attempting to breed this year or else are starting very late with very little effort. The only Farallon species doing reasonably well is the Western Gull, but gull food this year has been largely of human origin, either garbage or fishing offal. The 1983 breeding season is unquestionably the poorest observed within the last 15 years at the Farallon Islands by PRBO.

## SOUTHERN CALIFORNIA, JEFFREY B. FROKE

Seabird research conducted in southern California or reported by southern California PSG members include:

Cheng, L., and C. S. Harrison. 1983. Seabird predation on the sea-skater *Halobates sericeus* (Heteroptera: Gerridae). Marine Biology 72: 303-309.

Eppley, Z. Report and abstract of completed work on the ontogeny and thermoregulatory performance of Xantus' Murrelet chicks. Paper presented at May 1983 meeting of Southern California Academy of Sciences. (UCI).

Eppley, Z., N. Harrison, B. Braun, and G. Hunt. Pelagic distribution and abundance of marine birds in the Navarin Basin: the importance of hydrographic remains. (UCI).

Flint, E. Report of completed and continuing work on 1) time allocation of breeding Sooty Terns, 2) social biology of Sooty Terns, and 3) energy requirements for the Tern Island Sooty Tern colony at French Frigate Shoals, NW Hawaiian Islands. (UCLA).

Ford, G. Model predictions of short- and long-term effects of oil development on populations of Cassin's Auklets, Xantus' Murrelets, Western Gulls, and Brown Pelicans in the southern California Bight. (UCI).

Ford, G., and G. Hunt. Distributional analysis of seabirds near the Pribilof Islands, Alaska. (UCI).

Hand, J. L. Report of completed work on comparison of high-risk and low-risk foraging patterns of juvenile and adult gulls (several spp.) during scramble feeding situations; continuing work on 1) pair-bond formation and behavior of paired Western Gulls on San Nicolas Island, CA, and 2) sexing Western Gulls using external measurements (with Brian Obst).

Hunt, G., Z. Eppley, and D. Schneider. Density dependence in the reproduction of northern hemisphere seabirds. (UCI).

Hunt, G., and J. Sayce. Reproductive effort of Western Gulls in relation to northern anchovy stocks in the California Bight (9th year). (UCI).

Hunt, G., and D. Schneider. Distribution of marine birds in relation to season and hydrographic domains in the southeastern Bering Sea. (UCI).

Hunt, G., and D. Veit. Distribution and abundance of marine birds in the East-Wind drift, Antarctica. (UCI).

Ingraham, T., and G. Hunt. In cooperation with Dan Anderson and Franklin Gress, completing development of a seabird monitoring handbook for the Channel Islands National Park. (UCI).

Kuletz, K. Completing M.S. thesis on foraging behavior and food habits of Pigeon Guillemots on Naked Island, Prince William Sound, Alaska. (UCI).

Sayce, J. Completing M.S. thesis on sex ratios of hatching and fledgling Western Gull chicks and sex-specific differences in growth, fledgling weight, and prefledging mortality on Santa Barbara Island, CA. (UCI).

Schaeffner, F. C., Jr. Completed M.S. thesis on reproductive ecology of the Elegant Tern at San Diego Bay, CA. (SDSU).

Schneider, D., and D. Duffy. Measurement of small-scale variability in seabird numbers in the Benguela Current. (UCI).

Veit, D. Distribution and abundance of marine birds in relation to hydrography off the Pacific and Atlantic coasts of southern South America. (UCI).

Wenzel, B. M. Neuroanatomy of procellariiform brains, with special emphasis on the olfactory system. (UCLA).

## MEXICO, ENRIQUETA VELARDE

*Results in Press or in Preparation*

Gonzalo Gaviño, Instituto de Biología, Universidad Nacional Autónoma de México.

1. Inventory and population size of nesting seabirds on Isla Ixtapa, Guerrero; Isla Marieta, Jalisco; Isla Santa Isabela, Nayarit; Isla San José, Santa Catalina, Del Carmen, Monserrat San Ildefonso, San Esteban; Baja California.

2. Census of nesting colonies along the coast of Jalisco.

3. Inventory and abundance of waterfowl by San Blas, Nayarit.

4. Census of Brown Pelican colonies on Isla de la Peñita, Nayarit.

5. Census of waterfowl on Isla Pajarera, Jalisco.

*Research in Progress:*

Dr. Hugh Drummond, Instituto de Biología, Universidad Nacional Autónoma de México. Reproductive biology and behavioral control of brood size in the Blue-footed Booby, Isla Isabela, Nayarit.

Gilberto Gomez. Universidad Autónoma de Baja California. Inventory and distribution of birds, mainly waterfowl and seabirds, in the area of La Paz, Baja California, and adjacent islands.

Miguel Angel Melo, Centro de Estudios Ecológicos de Acapulco, Secretaría de Agricultura y Recursos Hidráulicos. Migration of the Brown Pelican along the coast of Guerrero.

Katsuo Nishikawa, CICESE, Ensenada, Baja California. Biological effects of environmental pollutants.

Mario A. Ramos, Instituto Nacional de Investigaciones sobre Recursos Bióticos. Breeding, feeding, and behavioral ecology of the Olivaceous Cormorant in Oaxaca, east coast.

Enriqueta Velarde, Instituto de Biología, Universidad Nacional Autónoma de Mexico. Behavioral patterns, breeding, and feeding ecology of the Heermann's Gull in Isla Rasa, Baja California. With R. Medellin: Analysis of the diet of Barn Owls feeding on seabirds and fishing bats in the area of Isla Rasa and Isla Partida, Baja California.

Armando Yocoyama. Escuela Superior de Ecología Marina, Acapulco, Guerrero. Diet and feeding biology of cormorants.

*New Projects*

Monica Herzig. Universidad Autónoma Metropolitana. Inventory and human impact evaluation on seabird colonies along Baja California.

## HAWAII, STEWART I. FEFER

The following are seabird studies conducted during and scheduled for 1983 in the Hawaiian region. The projects have been grouped by areas. Individual projects within the group are listed alphabetically by surname of the principal investigator. Addresses of investigators appear only the first time the investigator is listed. Persons whose studies have been omitted are requested to contact me so that the project may be included in next year's report.

*Main Hawaiian Islands*

a) Newell's Shearwater nesting colony establishment at Kilauea Point, Kauai. To evaluate the success of experimental Newell's Shearwater nest colony establishment at this site. Dan Moriarty, USFWS, Kilauea WAS, P. O. Box 87, Kilauea, Kauai, HI 96754

b) Educational program on Hawaiian seabirds. To educate the numerous visitors to Kilauea WAS on seabirds of Hawaii. Dan Moriarty

c) Laysan Albatross attraction project. To determine the feasibility of Laysan Albatross nesting colony establishment at Kilauea Point, Kauai, by attracting albatrosses to the site through recordings, decoys, and habitat management. Richard Podolsky, Earthwatch, c/o Box 87, Kilauea, Kauai, HI 96754

d) Light attraction in Hawaiian seabirds. To test effects of placing spectral filters on lights and continue studies on spectral sensitivity studies of Hawaiian seabirds. Jonathan R. Reed, Dept. of Zool., Univ. of Wisconsin, Madison, WI 53706

e) Survey of Newell's Shearwater, Dark-rumped Petrel, and Harcourt's Petrel on Kauai. To locate all nesting grounds of these endangered seabird species. John L. Sincock, Wildlife Research Biologist, Endangered Species Program, Leader, Kauai Field Station, USFWS Box 1997, Koloa, Kauai, HI 96756; Thomas C. Telfer, District Wildlife Biologist, Kauai District, P. O. Box 1671, Lihue, Kauai, HI 96766

f) Time and distribution of autumnal fallout of fledglings on Kauai. To determine time and distribution to moonphase, photopollution, type and shading of Kauai streetlights and other types of outdoor lighting. John L. Sincock and Thomas C. Telfer

g) Newell's Shearwater nesting colony establishment on Kauai. To evaluate the success of experimental Newell's Shearwater nest colony establishment by egg transplants into established Wedge-tailed Shearwater (foster parents) nests and to determine natal nesting colony productivity and limiting factors. Thomas C. Telfer and John L. Sincock

h) Survey and inventory of Kahoolawe. To determine nesting status of Dark-rumped Petrels and other seabirds on Kahoolawe. USFWS, RWR, Box 50167, Honolulu, HI 96850

i) The Nature Conservancy of Hawaii is forming a committee to attempt to raise funds to shade all streetlights on Kauai as the electric company converts from mercury to sodium vapor lights. TNC has leased a 213-acre nesting colony of Newell's Shearwaters on Kauai. John L. Sincock will be advising TNC on management and research needs of the area.

*Islands Offshore of Main Hawaiian Islands (Including Kaula)*

a) Effects of overflights on seabirds of Kaula Island. To determine effects of overflights on behavior and productivity of seabirds of Kaula Island. S. I. Fefer, Migratory Bird Biologist, USFWS, Box 50167, Honolulu, HI 96850; Maura B. Naughton, Ecologist, USFWS, Box 50167, Honolulu, HI 96850; R. Walker, Division of Forestry and Wildlife, 1151 Punchbowl, Honolulu, HI 96813; Marie Morin, Division of Forestry and Wildlife, Honolulu

b) Seabird oil toxicity project, Wedge-tailed Shearwaters, Manana Island, Oahu. To determine the effects of crude oil exposure on breeding success of Wedge-tailed Shearwaters. D. M. Fry and C. R. Grau, Dept. of Avian Sciences, UC Davis

c) Survey of inventory of offshore islands of Oahu. To determine seabird populations. Ralph S. Saito, Oahu District Biologist, Division of Forestry and Wildlife, 1151 Punchbowl St., Honolulu, HI 96813

d) Survey and inventory of Kauai offshore islands. To determine seabird populations. Thomas C. Telfer

e) Inventory of breeding populations of seabirds on selected offshore islands of Maui. To document breeding populations of seabirds on selected islands including, in 1983, Kaemi, Alau, Puuku of Maui and Kiei, Noio, Poopoo of Lanai. Cameron B. Kepler, Research Wildlife Biologist, Endangered Species Program, Leader, Maui Field Station, USFWS, 248 Kaweo Place, Kula, Maui, HI 96790

f) Survey and inventory of Kaula Island. To document seabird populations including breeding populations of seabirds of Kaula Island. Ron Walker and Marie Morin

g) Monitoring of seabird populations on islands offshore of Main Hawaiian Islands. To apply monitoring techniques developed during Tripartite Studies of seabirds in the NWHI to seabird populations on offshore islands. USFWS, RWR, Box 50167, Honolulu, HI 96850 and Hawaii State Division of Forestry and Wildlife, Honolulu

*Northwestern Hawaiian Islands*

a) Survey and inventory of seabirds of Nihoa Island. To document breeding populations and phenology of seabirds present on Nihoa Island during April 1983. Sheila Conant, Biology Dept., Univ. Hawaii, Manoa, Honolulu, HI 96844

b) Monitoring seabird populations in the NWHI. To collect baseline information on breeding parameters, food habits and pollutant levels in NWHI seabirds for comparison with future data collected to determine population trends and productivity of seabird populations. Data have been collected for several years. Most of activity involves analysis and method development with data collection focused this year on Tern Island, French Frigate Shoals.

S. I. Fefer, M. B. Naughton, A. Newman, M. B. Wagner, D. Hu, USFWS, Honolulu; S. Fairaizl, J. Andre, P. Pyle, B. Eilerts, and S. Johnston, USFWS, Tern Island, French Frigate Shoals

c) Atlas of Hawaiian seabird colonies. To document breeding populations of seabirds on Hawaiian Islands from available information. S. I. Fefer, M. B. Naughton, and D. Hu

d) Monitoring disease problems in NWHI seabirds. To monitor disease problems in Laysan Albatross populations on Midway Islands, identify vectors and determine epidemiology of outbreaks when they occur. Primary emphasis on avian pox, salmonella, lead poisoning, and plastic impaction. S. I. Fefer, M. B. Naughton, USFWS, Honolulu; W. Hansen, L. Sileo, R. Stroud, National Wildlife Health Lab., USFWS, Madison, WI

e) Exotic pest introduction, hazardous waste spill and disease control contingency planning in NWHI. To minimize effects of these activities on NWHI seabird populations should they occur by detailing response protocol. S. I. Fefer; Robert J. Shallenberger, Refuge Complex Manager, Hawaiian and Pacific Islands Complex NWR, USFWS, Box 50167, Honolulu, HI 96850; Russell R. Reidinger, USFWS, Animal Damage Control Research Division, c/o Monel Laboratories, Philadelphia, PA

f) Fishery/seabird interactions. To document potential effects of proposed increase in commercial fisheries near NWHI. A synopsis of seabird research conducted in the NWHI in relation to potential seabird/fishery interactions has been prepared for incorporation into the NWHI symposium proceedings, May 23-25, 1983. S. I. Fefer, C. Harrison, M. B. Naughton, and R. J. Shallenberger

g) Feeding ecology of NWHI seabirds. To document foods of Hawaiian seabirds. Several papers are being written on the food habits studies conducted during the past four years. Craig S. Harrison, USFWS, Box 50167, Honolulu, HI 96850

h) Thermoregulation in breeding Great Frigatebirds on Eastern Island, Midway Atoll. To determine adaptations to thermoregulation of Great Frigatebirds on Eastern Island, Midway. S. Mahoney, Dept. of Biological Science, Florida Atlantic Univ., Boca Raton, FL 33431; M. Fairchild, Dept. of Zoology, Ohio State Univ., 1735 Neil Ave., Columbus, OH 43210

i) Pollutant levels in NWHI seabirds. To document pollutant levels in NWHI seabirds. Manuscripts in preparation concerning chlorinated hydrocarbon levels in eggs of Red-footed Boobies, Wedge-tailed Shearwaters, and Sooty Terns. Harry Ohlendorf, Wildlife Research Biologist, USFWS, c/o Wildlife and Fisheries Biology, UC Davis, Davis, CA 95616; Craig Harrison

j) Population-bioenergetics model of NWHI seabirds. To determine consumptive rates of seabirds in the NWHI. A computer model has been developed to calculate energetic demands of seabird populations in the NWHI. A preliminary report on the consumptive rates of seabirds of French Frigate Shoals is in preparation for inclusion in the NWHI symposium proceedings, May 25-27, 1983. Ted Pettit, Dept. of Physiology, Univ. of Hawaii, Honolulu; Causey Whittow, Dept. of Physiology, Univ. of Hawaii, Honolulu, HI 96844

k) Activity budgets of Laysan and Black-footed Albatrosses. To determine amount of time these species spend feeding. Activity recorders placed on these species indicate amount of time spent on the water. Peter Prince, British Antarctic Survey, Madingley Rd., Cambridge CB3 OET, England; P. Pyle, S. Fairaizl, B. Eilerts, and S. Johnston, USFWS, Honolulu

l) Spectral sensitivity in seabirds. To determine spectral sensitivity of seabird species in Hawaii. Seven seabird species were tested on Tern Island, French Frigate Shoals. Jonathan R. Reed

m) Survey and inventory of seabirds of Kure Atoll. To determine populations of seabirds on Kure Atoll. Ralph S. Saito and Ron Walker

n) Energetics and reproduction of Midway Island seabirds. To measure growth rates of Brown Noddies, Red-footed Boobies, White Terns, Sooty Terns, Red-tailed Tropicbirds, and Gray-backed Terns on Midway Islands. Russell Shea and Robert Ricklefs, Univ. of Pennsylvania, Philadelphia, PA

o) Nest site selection in Sooty Terns. To study physiological and population consequences of nest site selection in adult and chick Sooty Terns in two nesting habitats with different temperature regimes on Midway Islands. Russell Shea and Robert Ricklefs

*Other Pacific Locations*

a) Survey and inventory of Wake Atoll. To determine nesting populations of seabirds on Wake Island and determine management needs. S. I. Fefer and R. J. Shallenberger, USFWS, Honolulu

b) Survey and inventory of Johnston Island NWR. To determine nesting populations of seabirds at Johnston Atoll. G. Ludwig, R. J. Shallenberger, and S. I. Fefer, USFWS, Honolulu

c) Survey and inventory of Rose Atoll NWR, American Samoa. To determine nesting populations of seabirds on Rose Atoll NWR. G. Ludwig and S. I. Fefer, USFWS, Honolulu

d) Predator Control on Jarvis Island NWR. To eliminate cats on Jarvis Island and document recovery of seabird populations. M. Rauzon, D. Woodside, S. Fairaizl, R. J. Shallenberger, and G. Ludwig, USFWS, Honolulu

e) Monitoring recovery of seabird populations on Christmas Island from a reproductive failure in 1982. To document recovery of seabird populations on Christmas Island correlated with an oceanic and atmospheric anomaly in Fall 1982. Ralph W. and Elizabeth Anne Schreiber. Ornithology Section, Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007

*Miscellaneous Items*

1982 was a busy year for the Hawaiian region. Several of the group were involved in preparation for the joint meeting with the Australasian Seabird Group in Honolulu during December 1982. Additionally, Craig Harrison has been busy with correspondence as Chairman of PSG.

*Conservation Issues*

The most pressing conservation issue concerning seabirds in Hawaii involves the proposed expansion of commercial fisheries in the NWHI. A conference designed to review the results of research conducted on the various aspects of the marine system of the NWHI during the past five years took place on 25-27 May 1983 in Honolulu. Results of scientific research were presented and panel discussions held concerning management and optimum use of the NWHI area. FWS announced plans to Master Plan the NWHI Refuge and continued to solicit input to this process. Proceedings of this symposium will be available this fall. I hope that PSG will tell FWS how it would like to see the seabird resources of the Hawaiian Islands NWR managed in the future. I will provide further information as to appropriate timing of this critical input.

## EASTERN CANADA, ERICA H. DUNN

Work at the National Wildlife Research Centre (Glen A. Fox, Wildlife Toxicology, NWRC, Canadian Wildlife Service, Ottawa, ON E1A 0E7, Canada) includes:

1. Analysis of data from a five-year demographic study of a color-marked Herring Gull colony on Lake Ontario. A paper is being prepared on pollutant-induced population perturbations in Herring Gulls and another on their food habits in the breeding season.

2. The results of a blood chemistry study of Ring-billed and Herring Gulls collected at the same stage of the breeding season in one colony are being prepared.

3. Data from a four-year study of thyroid function of Great Lakes Herring Gulls are being analyzed.

4. A Registry of Congenital Anomalies in colonial fish-eating birds has been established to monitor teratogenic substances in the environment. Data have already been received for about 250,000 chicks. (See call for data in the Bulletin Board.)

Drs. David Peakall, Ronald Butler (Duquesne Univ.), and Frederick Leighton (Cornell Univ.), in cooperation with David Nettleship, are investigating the effects of crude oil on Herring Gulls, Leach's Petrels, and Atlantic Puffins at the Great Island colony near St. John's, Newfoundland.

R. W. Prach, CWS (Room 1000, 9942 108 St. Edmonton, AB T5M 2H6, Canada) is studying ecological relationships in a High Arctic polynya. He is developing a model to predict the effects of offshore development and marine transportation on these areas. Fieldwork begun in 1980 has concentrated on the abundance, feeding, and nesting distribution of Northern Fulmars, Common Eiders, Glaucous and Thayer's Gulls, terns, and Black Guillemots in the Hell Gate-Cardigan Strait polynya. A report on the information gathered so far on eiders will appear in CWS Report Series #45, Eider ducks in Canada.

## LETTERS TO THE EDITOR

Zoology Department,
Tillydrone Avenue,
Aberdeen AB9 2TN, UK
19 April 1983

Sir,

**ICBP and IOC Workshops and Committees.**

It is always interesting to discover what other people thought happened at meetings. I do not know much more than Craig Harrison about what happened at the International Council for Bird Preservation "Seabird Workshop" in Cambridge last August, which he discusses in your winter Bulletin (9:83), because after I had supplied the names and addresses of possible participants (including the Pacific Seabird Group, which seems to have been lost again...) I found that my assistance was no longer needed. But may I place an alternative impression on record?

In the first place, before it is entirely forgotten, I should like to pay a tribute to John Temple Lang, busy and capable international lawyer and Chairman of the ICBP European Continental Section, who although he is by no means an expert on seabirds when asked to organise the meeting personally raised the supporting grant from NATO and arranged the program. Those of us who knew about it were rather worried when we heard that the ICBP Secretariat proposed to change it all on the basis of anonymous local advice, and relieved but rather angry when we discovered that this merely meant the names given the credit.

Secondly, it should be made clear that this and comparable behavior by the persons organising the International Ornithological Congress explains why the people asked to serve on previous seabird committees felt that it might be better if seabird people were to set up their own independent international committee to arrange matters in a more democratic way in future. Whereupon I was startled to observe how without consulting the previous management who suggested the idea the electorate promptly selected the person who had been the worst correspondent on both previous committees as Chairman, who then when instructed by the whole meeting including representatives of all the Seabird Groups to go and explain to the IOC in Moscow that we would have one committee in future promptly agreed to become Chairman of their committee as well. I cannot recall a coat being turned so rapidly in the entire history of ornithology.

In the circumstances, I should like to second Craig Harrison's nomination of Tony Diamond as an alternative Chairman since whenever I have heard from him as a long-serving secretary of committees he has always been making complaints, and it seems time he tried carrying the can himself.

Yours faithfully,

W. R. P. Bourne

Bob Hines

## CONSERVATION COMMITTEE

A new PSG Conservation Committee was established at the ninth annual PSG meeting in Honolulu on 1 December 1982. The following are members of the committee:

| | |
|---|---|
| Daniel W. Anderson | Davis, California |
| George J. Divoky | Bar Harbor, Maine |
| Stewart I. Fefer | Honolulu, Hawaii |
| Warren B. King | McLean, Virginia |
| Lora Leschner | Seattle, Washington |
| Ron Naveen | Washington, D.C. |
| Palmer C. Sekora | Corvallis, Oregon |
| Art Sowls | Anchorage, Alaska |
| Steven P. Thompson | Olympia, Washington |

Any PSG member who wishes to join the committee is welcome. The committee will hold its first official meeting at Asilomar, January 1984. Topics for discussion include:

1. An Orange Date Book for Seabirds.
   At present only endangered species are listed in a Red Data Book. The committee may therefore recommend another outlet such as an Orange Data Book, in which the status of all Pacific seabirds are listed. Once the Orange Book is established, PSG could inform government authorities of seabird populations which are threatened and recommend measures for their preservation.

2. A pamphlet for investigators.
   Most investigator disturbances are caused by individuals with little or no field experience or those with insufficient time for visits. It is advisable that beginners be completely familiar with the literature on investigator disturbance and learn from the mistakes of their predecessors. Since a novice may not be aware of all relevant literature on investigator disturbance, PSG could prepare a pamphlet for investigators giving instructions on how to minimize disturbance to seabirds.

3. A joint workshop by the Colonial Waterbird Group and the Pacific Seabird Group on conservation issues of colonial waterbirds in North America, to be held December 1984 (or earlier).

Kees Vermeer

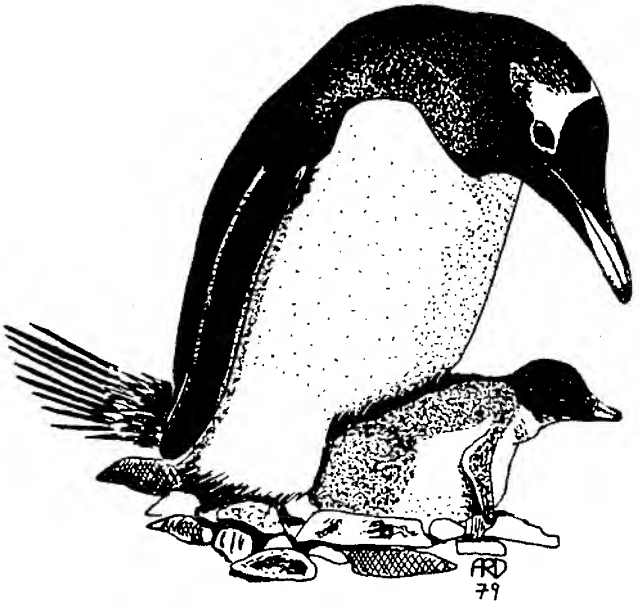
## SCIENTIFIC TRANSLATIONS COMMITTEE

The following translations have been deposited in the Van Tyne Library:

Belopolskii, L. O., V. N. Babaryka, L. A. Buyaev, and L. V. Smirnova. 1982. [Ecology of the annual distribution of seabirds in the open ocean]. Doklady Akad. Nauk SSSR 262:508-512.

Duhamel, G. 1981. [Ornithological observations on wintering seabirds in the southern part of the Atlantic and Indian Oceans]. Alauda 49:241-249.

Douglas Siegel-Causey



Gentoo Penguin

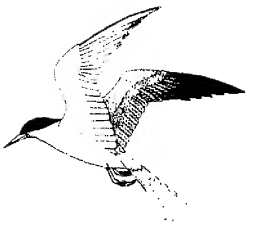
## WASHINGTON STATE MARINE SANCTUARIES PROGRAM

The Marine Sanctuaries Program was authorized under the Marine Research and Sanctuaries Act of 1972. Sanctuaries may be designated as far seaward as the outer edge of the Continental Shelf, in coastal waters where the tide ebbs and flows, and in the Great Lakes and their connecting waters. The Secretary of Commerce is authorized to designate ocean waters as marine sanctuaries to protect or restore their conservational, recreational, ecological, or esthetic values. Eight coastal regions were evaluated for potential sites for marine sanctuaries; two sites in Washington State remain on the list for future evaluation. Originally Washington State had three sites recommended for consideration on the site evaluation list—Western Washington's outer coast, Washington State nearshore, and Willapa Bay Marine Sanctuary. After public and state government comments, the Scientific Team for the Pacific Region recommended that two sites from Washington be further evaluated. These sites are the Western Washington Outer Coast Sanctuary extending from Duntz Rock (north of Tatoosh Island) 90 miles southward along the coast to Point Grenville. The inshore boundary would extend to mean high water; the offshore boundary is continuous with the boundary established for the area's Washington Island National Wildlife Refuge, 2-3 miles offshore. This area is important for seabird breeding and foraging and there are several ecologically and commercially important species of fish, raptors, and marine mammals in the area. Gray whales and Sooty Shearwaters migrate through these waters twice a year. Because of the diversity and richness of marine organisms, this area has exceptional opportunities for scientific research in the areas of species interactions, population dynamics, and physiological ecology.

The second site to make the evaluation list was the Washington State Nearshore Marine Sanctuary. Unfortunately, much of the important areas for seabirds have been eliminated at the request of the state government officials. It will be the public's responsibility to see that the originally proposed area remains intact. Originally the area encompassed a series of habitats that represent the extraordinary diversity of marine communities found within the Puget Sound ecosystem and includes some of the most productive waters found in the United States. The three areas would be the San Juan Islands-Skagit Bay Complex and the coastal waters adjacent to Dungeness Spit, within Sequim Bay and adjacent to Indian Island which would include Protection Island. The southernmost division of the proposed sanctuary would include the estuarine waters of the Nisqually Delta and the shallow waters surrounding Anderson, McNeil, and Gertrude Islands.

After the site was modified and went on the site evaluation list, it includes only the San Juan Island complex; the most important areas for migrating shorebirds and breeding seabirds have been compromised. Protection Island and Dungeness Spit are federal wildlife refuges but none of the water surrounding them is protected. Skagit Bay which is important for Bald Eagles, Snow Geese, and many other species of birds has also been eliminated from the proposed Nearshore Sanctuary.

Letters suggesting that the old boundary which would include much more seabird habitat should be addressed to the Governor of the State of Washington, John Spellman, Olympia, Washington 98504, and to Nancy Foster, Sanctuary Programs Division, Office of Ocean and Coastal Resource Management, NOAA, 3300 Whitehaven Street, N.W., Washington, D.C. 20235.



## INTERNATIONAL THREATS TO SEABIRDS

*Henderson Island, Pitcairn*

A. M. "Smiley" Ratcliff, a former high-school football coach who has made a fortune in strip-mining coal, has applied to the British Colonial Office for permission to build a home and airstrip on Henderson Island and another airstrip on Pitcairn Island.

Henderson Island is uninhabited and has breeding populations of four species of *Pterodroma* petrels and two of *Puffinus* petrels. These species formerly bred on Pitcairn but have been eliminated by introduced predators and humans. Henderson also has an endemic rail, the Henderson Island Crake *Porzana* (*Nesophylax*) *atra*. According to a 1960 report (fide John Warham), the vegetation is in good condition and is wholly indigenous. There are no known permanent sources of fresh water on the island.

There is considerable concern that human occupation of the island will lead to the introduction of predators and elimination of ground-nesting birds.

*Wilson Island, Queensland, Australia*

The Queensland Government has recently granted a lease of the western half of 4.9-ha Wilson Island for development of a low-cost tourist resort. Wilson Island holds one of the three main colonies of Roseate Terns on the Australian Great Barrier Reef.

*Snares Island, New Zealand*

There is a proposal to install land-based mooring lines at Snares Island, which holds large, important seabird colonies. It is feared that the tragedy of rats' coming ashore from fishing boats and exterminating seabird breeding colonies and several endemic land birds on Big South Cape Islands will be repeated if this proposal is allowed.

## REPRINTED FROM *EDF (ENVIRONMENTAL DEFENSE FUND) NEWSLETTER* JANUARY/FEBRUARY 1983

**Oil vs. Seals**

EDF has joined other environmental organizations in defending the Secretary of Commerce against a suit challenging the designation of the Channel Islands, off the California coast, as a Marine Sanctuary. President Carter's Commerce Secretary designated the area in 1980, primarily to protect its abundant marine mammal and bird life. A trade association of western oil and gas developers filed the suit, arguing that the designation was unlawful and its restrictions on oil and gas development arbitrary.

The Federal Marine Sanctuary Program is a fledgling effort, but it has great potential for protecting marine areas of major ecological importance. Only six sanctuaries have been named so far, and this challenge, the first against a sanctuary designation, is therefore important.

REPRINTED FROM *TROPICAL OCEAN ATMOSPHERE NEWSLETTER*, FEBRUARY 1983:10-12

## Reproductive Failure of Marine Birds on Christmas Island, Fall 1982

Most marine birds breed on oceanic islands, but their evolution is most intricately tied to atmospheric and oceanic conditions which influence the fish and squid populations upon which the birds feed (Ashmole, 1971; Ainley, 1977; Nelson, 1978). Christmas Island (2°N, 157°W), the largest coral atoll in the world, supports 18 species of breeding marine birds (Ashmole and Ashmole, 1967; Schreiber and Ashmole, 1970; Schreiber and Hensley, 1976). Three orders of birds are involved; Procellariiformes (petrels and shearwaters: 5 species), Pelecaniformes (tropic birds, boobies and frigate birds: 6 species) and Charadriiformes (terns: 7 species). Several species are found in only small numbers (hundreds of pairs), many thousand pairs of other species are found, and the Sooty Tern population is estimated at 14,000,000 individuals. The birds are concentrated, nesting primarily on islets, although some species do nest on the mainland of the atoll. Each species breeds on extended but fairly regular, independent, well-established nesting cycles. Reproductive success and population data indicate that, for the 11 years during the 1950-1980s for which data are available, no massive reproductive failure has occurred, although individual species have shown an occasional failure (Gallagher, 1960).

However, during our visit in November 1982, we discovered virtually a total reproductive failure on the island; the bird populations had essentially disappeared, and many dead and starving nestlings were present.

The shearwaters and petrels are all ground or burrow nesters. Numbers of *Pterodroma alba* (Phoenix Petrel) and *Puffinus nativitatis* (Christmas Shearwater) appeared to be just arriving on the island as expected from their usual fall low populations (August-October: *P. alba*; June-November: *P. nativitatis*). Many prospecting birds, courting pairs, and a few eggs of *P. alba*, were present on their nesting islets. Similarly, *Puffinus pacificus* (Wedge-tailed Shearwater) was seen in only small numbers, as expected because they breed in March-August and are gone from the island by December for the remainder of the year. Data are not complete, but these three species do not seem to have been affected by the autumn 1982 warm event. The numbers of and timing of nesting by *Puffinus lherminieri* (Audubon's Shearwater) are poorly understood. We did find seven nestlings which all appeared to be in poor condition (underweight). We expected to find numbers of *Nesofregetta albigularis* (White-throated Storm-Petrel) but found none nesting and saw none in areas where nests existed in past years. We believe the hard rains flooded their burrows.

Our best data are for the Pelecaniformes. In 1979, 1980, and 1982 we permanently marked, in discrete colonies, over 500 nests of various species; permanently banded, weighed, and measured the adults and nestlings at these nests; and weighed and measured the eggs present. We expected to find a few hundred *Phaethon rubricauda* (Red-tailed Tropicbird) but saw fewer than 10 adults during 8 days of field work in November 1982. The 3 nestlings found were of normal weight for their age and appeared healthy. The one adult captured was likewise of normal weight.

In June 1982 *Sula dactylatra* (Blue-faced Booby) was nesting on the southeast point of the island in the location where many nests have been found since at least the late 1950s. We banded 72 adults and juveniles and recaptured 29 individuals banded in previous years. We marked 33 nests and found 28 eggs in 20 nests. Additionally, we counted 56 birds paired and 28 single birds "on territory" but too wary for us to capture. We found a roosting flock of over 110 birds. The nesting season was just beginning with timing similar to but somewhat later than in previous years. The incubation period of *Sula dactylatra* is approximately 45 days (Dorward, 1962) and the nestling period is 4 months. Thus, large numbers of pre-flying nestlings and adults should have been present in November. We found only 1 nestling, approximately 4 months old, and 3 adults in the region. The nestling was fully feathered but its weight of 1250 g is about 25% below normal for that age, and it appeared unhealthy. We saw few adults and no juveniles elsewhere on the island.

*Sula leucogaster* (Brown Booby) should have been on nests with eggs and nestlings, although they are usually the least common and least conspicuous Pelecaniforme on the island. We found no nesting but both adults and birds of the year were present in nesting areas. The number of this species present did not appear to be diminished. We found no *Sula sula* (Red-footed Booby) nests although November-January is a usual time of build up in the population. We did find a couple hundred birds roosting on the islands but thousands normally are present.

In June 1982 *Fregata minor* (Great Frigate bird) nested in large numbers (~10,000 pairs) and we banded 222 adults and 50 nestlings in study colonies. In November we saw fewer than 100 birds during our study. In the three colonies we studied in June, 64 eggs and 28 nestlings less than a month old were present. The nestling period of frigates is at least 160 days and the young are then dependent on their parents for an additional 14 months (Schreiber, unpublished data). Approximately 90 nestlings should have been present in November, but we found only 6 still alive. None were able to fly and one starved between our two visits to the colony, losing over 140 g in 7 days. While all these nestlings were fully feathered and had normal length bills, wings, and tails, their weight averaged only 576 g (standard deviation (SD) = 166 g, range = 310-740 g, N = 6), significantly less than the 955 g for 28 juveniles in these colonies in March 1979 (SD = 118 g, range = 850-1190 g, t test, $P>0.001$). Additionally, we found 19 fully feathered carcasses lying on their nests where they died. All other nests were either present but empty or had been destroyed by the rains. Reproductive success in this species on the island will be essentially zero for 1982.

*Fregata ariel* (Lesser Frigate Bird) nest on one islet in a lagoon in the central portion of Christmas Island, and we estimated 3500 pairs with eggs or small young in June 1982. In November we found hundreds of dead nestlings in just one end of the colony. Perhaps 300 young birds had fledged. Fewer than 50 adults were present. In two small nesting clumps we counted 22 dead nestlings and 23 non-flying young in 68 nests (23 empty nests). The weight of 12 fully feathered nestlings averaged 461 g (SD = 80 g, range = 340-640 g) and was significantly below that of 20 adults measured in 1967 (mean = 857 g, SD = 93 g, range = 700-1050 g), although the bill, wing, and tail measurements were not different (t test, $P>0.001$ for weights). We believe that the vast majority of the nestlings still present will die of starvation.

Among the terns (Sternidae), we expected to find large numbers of *Sterna fuscata* (Sooty Tern) swirling over the nesting locations at night and perhaps remaining on the island during the day in preparation for the December nesting season. We neither saw nor heard any sooties during late November 1982. *Sterna lunata* (Grey-backed Tern) was present in normal numbers and no nests were present. *Thalasseus bergii* (Crested Tern) roosted in usual numbers in the northeast areas of the island where they feed in burrow pits. *Procelsterna cerulea* (Blue-gray Noddy) should have been present in large numbers and we found very few. *Anous stolidus* (Brown Noddy) was also generally absent from the atoll although we found a small colony of 11 eggs and one just-hatched nestling present on one islet. These eggs did not vary in size from a large sample from previous years or different seasons ($P<0.05$, t test). We did not expect to find numbers of nesting *Anous tenuirostris* (Black Noddy) but the population of roosting adults was lower than in previous years. Additionally, the well constructed nests of this species generally remain in branches of nest trees and are reused from year to year. These probably were destroyed in the rain and storms, because virtually no nests existed on the 3 islets where thousands usually are found. We expected to find several thousand *Gygis alba* (Fairy Terns) present and a number of eggs and young. We found fewer than 400 adults and only 3 nestlings, two of which appeared to be growing normally. The other had normal weight but no flight feathers were developed. We have no explanation for this growth anomaly.

The species and numbers of shore birds present in November were what we expected: *Arenaria interpres* (Ruddy Turnstone), *Numenius tahitiensis* (Bristle-thighed Curlew), *Heteroscelus incanus* (Wandering Tattler), and *Pluvialis dominica* (Golden Plover) present, widely scattered, and regularly seen.

At present (December 1982) the data for the oceanographic and meteorological conditions around Christmas Island are not available to us. However, our past experience indicates that the westerly winds, rain, solid cloud cover, and high sea level are unusual. The hard rains may have directly affected some bird species and caused both death of nestlings and abandonment by adults (shearwaters, petrels, Blue-faced Booby). We believe that the food supply has disappeared for the majority of the birds. The result is that adults abandoned the island and the nestlings then starved. Ecological theory indicates that for long-lived species of birds, such as the 20-35 year life-span of the birds studied at Christmas Island, it is evolutionarily best to abandon a nesting attempt rather than place undue stress on the adult, who can return to breed again when the food situation improves. We do not know where the adults have gone or if they have survived.

We plan to investigate when and if the adults return to nest and what the timing of nesting will be when they return. Our past banding efforts should be especially useful in this effort. Of major interest are that some species apparently were not affected by the warm event of the past months, but also that a very few individuals of the species that were affected have nested successfully. This is apparently an example of individual selection: during a difficult food situation some individuals do thrive. The prey items brought to Christmas Island by the birds are well known (Ashmole, 1967; Schreiber and Hensley, 1976): primarily Exocoetidae (flying fish) and Ommastrephidae (squid). Now we need to learn about the abundance and availability of those fish and squid at sea. Of even more critical interest is basic information on the causal factors which determine levels of the prey populations. Presumably the Joint Institute of Marine and Atmospheric Research (JIMAR) cruises on *R/V Machias* will provide a major step in this direction.

Ornithologists are hindered by lack of data on the correlations between breeding colony life of marine birds and physical/biological oceanography. Only joint efforts among all the disciplines involved in studying the 1982 central Pacific warm event phenomenon will provide the data needed to explain the population fluctuations at the upper levels of the marine food chain. We trust this report will stimulate communication among the scientists involved.

*References*


Ainley, D. G. (1977) Feeding methods in Seabirds: A comparison of Polar and Tropical nesting communities in the eastern Pacific Ocean. In: *Proceedings of the Third SCAR Symposium on Antarctic Biology: Adaptations Within Antarctic Ecosystems*, G. A. Llano, editor, Gulf Publication Co., Houston, 669-686.

Ashmole, N. P., and M. J. Ashmole (1967) Comparative feeding ecology of sea birds of a tropical oceanic island. *Bulletin of the Peabody Museum of Natural History, 24,* 131.

Ashmole, N. P. (1971) Seabird ecology and the marine environment. In: *Avian Biology, Vol. I*, D. S. Farner and J. R. King, editors. Academic Press, New York, 223-286.

Dorward, D. F. (1962) Comparative biology of the White Booby and the Brown Booby *Sula spp.* at Ascension Island, *Ibis, 103b*, 174-234.

Gallagher, M. . (1960) Bird notes from Christmas Island, Pacific Ocean. *Ibis, 102*, 489-502.

Nelson, J. B. (1978) *The Sulidae*. Oxford University Press, Oxford, 1012 pp.

Schreiber, R. W., and D. A. Hensley (1976) The diets of *Sula dactylatra*, *Sula sula*, and *Fregata minor* on Christmas Island, Pacific Ocean. *Pacific Science, 30*, 241-248.

Schreiber, R. W., and N. P. Ashmole (1970) Sea-bird breeding seasons on Christmas Island, Pacific Ocean. *Ibis, 112*, 363-394.



Ralph W. Schreiber
Elizabeth Anne Schreiber
*Section of Ornithology*
*Natural History Museum of Los Angeles County*
*900 Exposition Boulevard*
*Los Angeles, CA 90007*

## BOOK REVIEWS

*Breeding Biology of the Little Auk* (Plautus alle) *in Svalbard*. 1980. M. Norderhaug. 45 pp. Norsk Polarinstitutt Skrifter Nr. 173. Distributed by Columbia University Press. $7.50.

This short monograph presents the results of studies done in 1963-65 on the north shore of Hornsund, Spitsbergen. There is little mention of the methods used in the study, little analysis of the data, only cursory comparison with what is known about other species of alcids, and only slight discussion of the significance of the findings.

Lech Stempniewicz (Dept. Animal Ecology, Univ. Gdansk, Czologistow 46, 81-378 Gdynia, Poland) has also been studying Dovekie colonies on the north shore of Hornsund since 1974 and has recently published some of his findings (1980. Factors influencing the growth of the Little Auk, *Plautus alle* (L.), nestlings on Spitsbergen. Ekol. Polska 28:557-581; 1981. Breeding biology of the Little Auk *Plautus alle* in the Hornsund region, Spitsbergen. Acta. Ornithol. 18:141-165.). Unlike Norderhaug, Stempniewicz presents his methods, adequately analyzes his data, and thoroughly discusses the significance of his findings.

Stempniewicz includes most of the topics covered by Norderhaug and much additional material. But only Norderhaug covers food and variation in feeding rates. He also makes an interesting estimate of the amount of organic material transferred from marine to terrestrial ecosystems by Dovekies. Norderhaug's paper includes many interesting photographs of Dovekies and their environment. My impression was that Norderhaug was clearing his files of data collected years ago in which he had lost interest.

Columbia University Press is to be congratulated for distributing the Polarinstitutt's monographs. In this particular case, however, the relationship between price and content is out of line. - J. G. S., Jr.

*A Dictionary of Ecology, Evolution, and Systematics*. 1982. R. J. Lincoln, G. A. Boxshall, and R. F. Clark. 258 pp. Cambridge University Press. $47.50.

There is no mention of any kind of bird in this volume, so if you want to find out whether a species of Pelecanoididae is a kind of pelican you will have to look elsewhere. To evaluate the usefulness of this volume I looked up a set of specialized terms found in the indexes of several recent books on marine birds and systematics and compared the entries with those in Webster's Third New International Dictionary and my own understanding of the terms. For terms in long and widespread use, such as bradytaly, edge effect, and pelagic, both dictionaries are equally informative. As terms become progressively more recent and specialized, Webster's is less and less helpful. The Cambridge dictionary is a good place to find definitions for anagenesis, social facilitation, ultimate factor, and vicariance. Even it, however, is of little help with terms such as compatibility, creche, epicenter, kleptoparasitism, parental conflict, and Wagner tree.

The Cambridge dictionary has a set of 21 appendexes. They comprise a motley collection of maps and tables of things such as the geological time scale, zoogeographic regions, marine depth zones, taxonomic hierarchy, proof correction marks, and the Beaufort wind scale.

The price is steep, and potential buyers will have to balance the convenience of having one source for technical terms against the value of the dictionaries and specialized volumes they already own. - J. G. S., Jr.

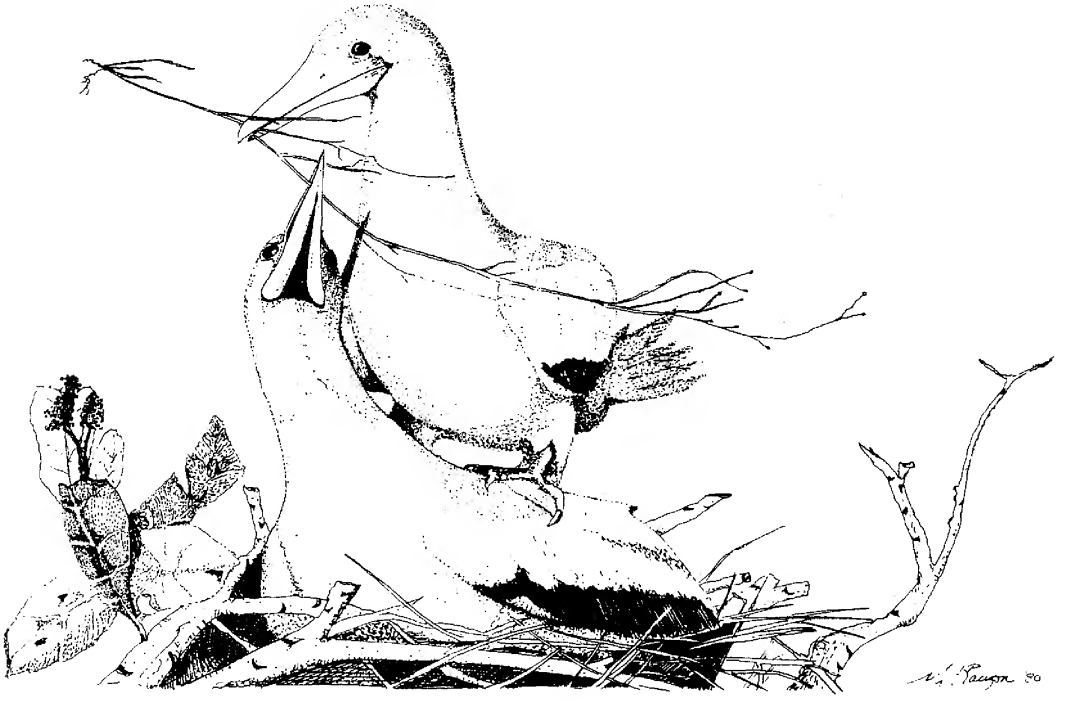
## NEW PUBLICATIONS

*Proceedings of the Symposium on Birds of the Sea and Shore, 1979*

These proceedings are the result of an international symposium held in Cape Town, South Africa, November 1979. Edited by J. Cooper, they are 474 pages long and contain 26 papers written by ornithologists from around the world. Species covered range from oystercatchers to penguins, albatrosses to shelduck. Topics covered include breeding biology, feeding ecology, molt, taxonomy, zoogeography, rehabilitation of oiled Jackass Penguins, and many more. Several papers are important reviews of their subjects (such as on seabird distribution) and will be widely quoted in the future.

The proceedings are now available at R25.00 (orders from overseas should include R2.00 to cover postage and bank exchange) from Treasurer, African Seabird Group, FitzPatrick Inst., Univ. Cape Town, Rondebosch 7700, South Africa.

A review will appear in the next issue of the PSG Bulletin.



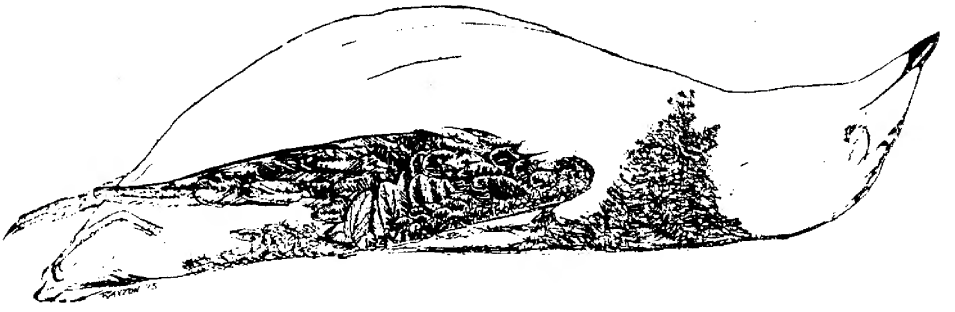
## BULLETIN BOARD

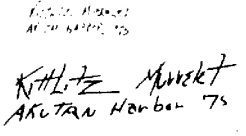
*Request for Chick Information*

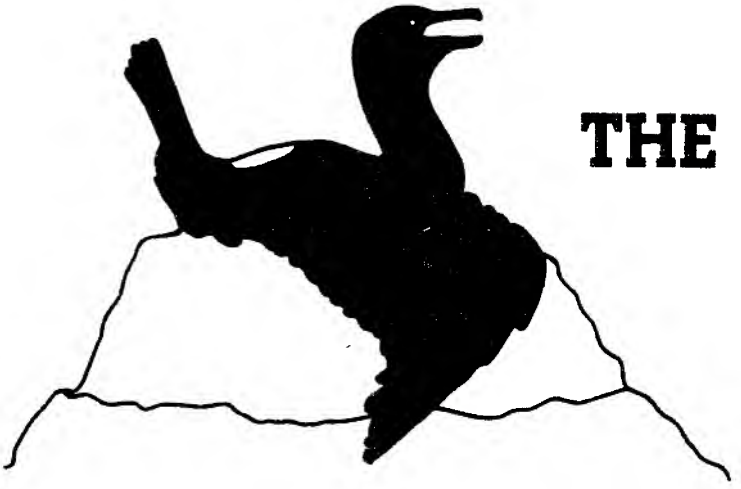
Banders of cormorant, heron, gull, and tern chicks are requested to send their annual totals of chicks banded, past and present, by species and general location, and with details of any deformities observed to Glen A. Fox, Wildlife Toxicology Division, Canadian Wildlife Service, National Wildlife Research Centre, Ottawa, ON K1A 0E7, Canada. These data will be used in environmental epidemiological studies.

*Second Iberoamerican Ornithological Congress*

The congress will take place 4-10 December 1983 at Xalapa, Veracruz, Mexico. Persons who requested information previously have been sent the second notice of the congress, including instructions for abstract preparation. Others interested in attending or participating should write to Mario A. Ramos, Apartado Postal 388, Xalapa, Veracruz, Mexico. Deadline for receipt of abstracts is 15 August. Allow 30 days for mail to reach Xalapa. Membership costs will be: Participating Member, $60 ($75 after 1 September); Associate Member, $30 ($45), Student Member, $30 ($45). Registration forms and fees should be received by 1 September. Accommodations will be at the Xalapa Hotel. Exciting field trips and tours will take place both before and after the paper sessions.





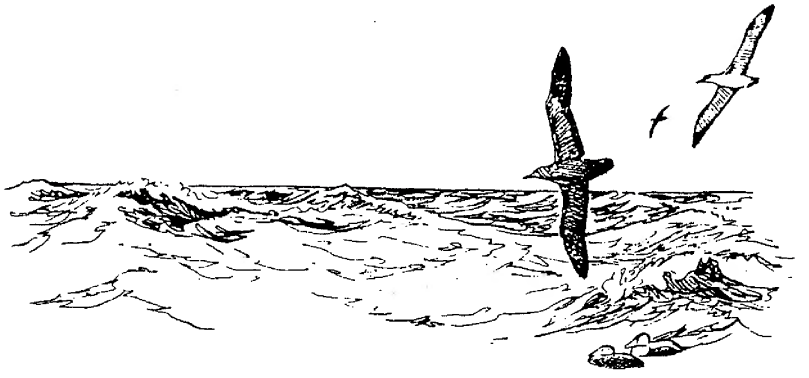


# THE CORMORANT

PSG members are invited to join the African Seabird Group. The primary interest of the group is seabirds (coastal and pelagic) occurring in the Afrotropical region and on islands in the Atlantic, Indian, and Southern oceans between 20°W, 80°E, and south of 20°N. With the exception of phalaropes, shorebirds are not considered to be seabirds. Essentially inland species of primary marine groups are included (e.g., the Grey-headed Gull *Larus cirrocephalus* and the *Chlidonias* terns).

The African Seabird Group exists to increase communication among those interested in seabirds, especially those of the region described above; to organize regular patrols for beached seabirds; and to publish its journal, *The Cormorant*, which is issued in two parts a year, normally June and December.

Membership in the group is R5.00 per year, and members receive *The Cormorant* free. Institutions may subscribe to *The Cormorant* for the same amount. All back numbers are currently available at R2.50 each. The first seven numbers were issued as bulletins of the Southern African Seabird Group. For further information write to the Treasurer, R. K. Brooke, FitzPatrick Inst., Univ. Cape Town, Rondebosch 7700, South Africa.



Bob Hines

## NEW MEMBERS

Glen Chilton
Dept. Zoology
Univ. Manitoba
Winnipeg, MB R3T 2N2
Canada

Graduate Student
Studies: Seabird foraging behavior

J. M. Cullen
Dept. Zoology
Monash University
Clayton 3160
Victoria, Australia

University Teacher
Studies: Breeding behavior of penguins, gulls, and terns

Alex Dzubin
Canadian Wildlife Service
115 Perimeter Rd.
Saskatoon, SK S7N 0X4
Canada

Wildlife Research Scientist
Studies: Northern Eider, Jones Sound, NWT
Interests: Energy flow, breeding biology and behavior, effects of noise, feeding strategies, and High Arctic polynyas

Keith A. Morehouse
10613 Brentwood Dr.
Manassas, VA 22111

Wildlife Biologist
Studies: Growth, nutrition, and bioenergetics of Pacific Brant, bioenergetics of Emperor Geese

Richard H. Podolsky
P.O. Box 87
Kilauea, HI 96754

Biology Lecturer
Studies: Colony initiation by albatrosses, storm-petrels, terns, and puffins

Jonathan R. Reed
Dept. Zoology
Univ. Wisconsin
Madison, WI 53706

Zoologist
Studies: Light attraction in Hawaiian seabirds, subsurface prey detection by Panamanian seabirds
Interests: Behavior and ecology

Pamela C. Rasmussen
225 W. Whitman
College Place, WA 99324

Graduate Student
Studies: Development of Pigeon Guillemot
Interests: Ecology and behavior of seabirds

M. Michele Vacca
P.O. Box 7540
Santa Cruz, CA 95061

Ted P. Winfield
Woodward-Clyde Consultants
P.O. Box 81848
San Diego, CA

Consultant
Studies: Risk analysis of Southern California marine mammals and seabirds
Interests: Seabird ecology, effects of oil on seabirds